

REMARKS

1. Claims

Claims 1 – 5 have been examined. Claim 4 stands rejected under 35 U.S.C. §112 as lacking sufficient antecedent basis for the limitation “the channel”; Claims 1 and 3 – 5 stand rejected under 35 U.S.C. §102(e) as anticipated independently by U.S. Pat. No. 5,923,799 (“Moles”) and U.S. Pat. No. 5,088,515 (“Kamen”); and Claim 2 stands rejected under 35 U.S.C. §103(a) as unpatentable over Moles or Kamen.

Claims 1 has been amended to recite aspects of the invention more particularly. Specifically, Claim 1 now requires that the recess of the nonelastomer substrate extend along a length to permit fluid flow along the length, and requires that actuation of the membrane controls a flow rate of the fluid flow along the length. Support for these amendments is provided generally at p. 61, l. 20 – p. 65, l. 2, with specific details provided at p. 12, ll. 13 – 14 and at p. 29, ll. 11 – 13. Claim 4 has been amended to correct the reference to the “channel” to refer instead to the “second recess,” thereby obviating the §112 rejection. Claim 31 has been added and recites that the channel has a width less than 500 microns. Support for this limitation is provided in the application at p. 16, l. 11.

The arrangement now recited in independent Claim 1 is neither taught nor suggested by either Moles or Kamen. Moles teaches an arrangement in which fluid flows through a channel 28 that is parallel to a polymeric valve layer. Flow through the channel 28 may be controlled by deflecting the polymeric valve layer to block inlet and egress channels 24 and 26 into a recess in a substrate (Moles, Col. 3, ll. 46 – 65). There is no teaching or suggestion of the recess extending along a length through which fluid flows. The recess in Moles is used only for the transfer of fluid from one portion of the channel 28 to the other 14. The mechanism for controlling fluid flow is thus different in Moles from what is now claimed.

Kamen describes a valve structure intended for use with intravenous fluid pumps. A membrane in a pressure conduction chamber may move in response to the amount of fluid in the pressure conduction chamber (Kamen, Col. 7, l. 62 – Col. 8, l. 6). Kamen does not teach that the pressure conduction chamber is a recess extending along a length along which fluid flows, and Kamen does not teach that the membrane is able to be actuated to control a flow rate along the length. Kamen thus also fails to disclose the limitations of amended Claim 1.

Independent Claim 1 is thus believed to be allowable and the claims that depend therefrom are believed to be allowable by virtue of their dependence from an allowable claim.

2. Information Disclosure Statements

The Office Action requests that the Information Disclosure Statements (“IDS’s”) filed on January 23, 2002 and September 4, 2001 be resubmitted. Duplicates of these IDS’s are accordingly enclosed herewith. In addition, Applicants note that certain references submitted with IDS’s have not been acknowledged by the Examiner as having been considered. These include the IDS’s submitted on September 25, 2003, on June 3, 2004, and on June 18, 2004. Applicants ask that consideration of the cited references be acknowledged by the Examiner initialing each citation. Copies of references were previously supplied to the Office in accordance with 37 CFR 1.98. Should any of the references not be available to the Examiner, however, the Examiner is asked to contact the undersigned.

Conclusion

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

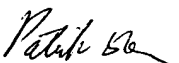
Application No. 09/724,784
Amendment dated December 13, 2004
Reply to Office Action of July 15, 2004

PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,

Date: December 13, 2004


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